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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/061,494	01/31/2002	G. William Walster	SUN-P6431-SPL	2067

22835 7590 03/23/2005

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EXAMINER
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DO, CHAT C

ART UNIT	PAPER NUMBER
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2193

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/061,494

Applicant(s)

WALSTER ET AL.

Examiner

Chat C. Do

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This communication is responsive to Amendment filed 01/24/2005.
2. Claims 1-2 and 4-18 are pending in this application. Claims 1, 6, 11, and 16 are independent claims. In Amendment, claims 1-2, 4, 6-9, 11-14, 16, and 18 are amended; and claim 3 is cancelled. This Office action is made final.

#### ***Claim Objections***

3. Claims 1, 6, 11, and 16 are objected to because of the following informalities:

Re claim 1, the applicant is advised to amend the phrase " $Ax = b$  by multiplying through by a matrix B" in lines 4-5 as " $Ax = b$  by multiplying both sides of the linear equations by a matrix B" for clearly defining that a matrix B is multiplying to both sides of equations as  $BAx = Bb$ . Re claims 6, 11, and 16, they have same objection.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-2 and 4-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re claim 1, the limitation “the hull” in line 13 lacks antecedence basis because it does not previous mention or cited in the claim. For examination purposes, the examiner considers the limitation as “a hull” in line 13. Claims 6, 11, and 16 have the same rejection.

Thus, claim 2, 4-5, 7-10, 12-15, and 17-18 are also rejected for being dependent on the rejected base claims 1, 6, 11, and 16 respectively.

***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-2, 4-5, 11-15, 16-18 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-2, 4-5 and 16-18 clearly recite a method for calculating bounding solution set of a system of linear system according to a mathematic algorithm. Claims 11-15 recite a storage medium for storing instruction and an apparatus, respectively, for implementing the above process but fail to limit the apparatus to any particular structure other than a general computer with input, memory, and processing devices. Indeed, any apparatus used to implementing the underlined process would result in an apparatus as claimed. In order for such a claimed method, computer-related process, or a claimed non-specified apparatus implementing the underlined process to be statutory, the claims must include either a step or means that results in a physical transformation outside the computer or a limitation to a practical application. However, it is clear from the claims

that the claims merely recite step or non-specific means for data computation and manipulation in performing a mathematical function. The input is a set of number and output is also a set of number. The claims fail to recite any step or means that results in a physical transformation outside the computer, that includes a limitation to a practical application, or that requires a specific computer to implement the claimed process. Therefore, claims 1-2, 4-5, 11-15, 16-18 are clearly directed to a non-statutory subject matter.

***Allowable Subject Matter***

8. Claim 6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claims 7-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

10. Applicant's arguments filed 01/24/2005 have been fully considered but they are not persuasive.

a. The applicant indicated in page 9 for rejected claims 1-18 under 35 U.S.C 101 that the invention relates to solving global optimization problems such as predicting weather, optimizing design of an aircraft engine, and solving non-linear systems. These

supports would be found on page 10, lines 22-25 and on page 1, lines 30 to page 2, line 3 of the instant application.

The examiner respectfully submits that amending the claim by inserting a global optimization problem does not overcome the rejection under 35 U.S.C 101 because the global optimization problems does not directly cite in the specification as predicting weather, optimizing design of an aircraft engine. In page 10 lines 22-25, that paragraph does not mention anything about the global optimization problems nor predicting weather and optimizing design of an aircraft engine. In page 1 line 30 to page 2 line 3, it does not directly quote that the global optimization problems are predicting weather and optimizing design of an aircraft engine but rather it mentions about intensive computation tasks in predicting weather and/or optimizing design of an aircraft engine. Therefore, the examiner interprets broadly the global optimization problems is just a problem of optimizing system of linear equation which obvious purely mathematic.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chat C. Do whose telephone number is (571) 272-3721. The examiner can normally be reached on M => F from 7:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaki Kakali can be reached on (571) 272-3719. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chat C. Do  
Examiner  
Art Unit 2124

March 10, 2005



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